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BOOK REVIEW

THE INTESTINAL PROTOZOA OF MAN. By Clifford Dobell and F. W. O'Connor. William Wood & Co., New York, 1921. 221 pp., 8 pl.

This book represents primarily the results of observations upon the intestinal protozoan parasites of man, found and studied by the authors in England, during and since the world war, together with brief reviews and criticisms of the papers by other investgators upon these organisms.

The text is divided into nine chapters. A general consideration of the Subkingdom Protozoa and its four Phyla with other allied matters and the diagnosis of intestinal protozoal infections in which is given an introduction to the technique of studying the parasitic Protozoa, form two chapters. Descriptions and keys of the known species of amoebae (4 genera and 5 species), flagellates (5 genera and 5 species), coccidia (2 genera and 4 species), and ciliates (2 genera and 3 species) of man, are given in order in separate chapters which also deal with the pathology and symptomatology of the respective infections. The outstanding feature of this book is the earnest cooperation of a careful worker in zoology and of an experienced medical man; and this is manifested in the careful combination of medical and zoological statements in all topics.

The book is wide and fairly complete in its scope as far as present knowledge is concerned; it is clearly and briefly written in an attractive style and may, on the whole, answer well the purposes aimed at by the authors. Yet the general information given in the first chapter seems to be too brief, for some readers may easily acquire a misconception of some of the general characteristics of Protozoa (for instance, those of Sporozoa). Under the limitations of space here a clear fundamental knowledge of the general subject of Protozoa can be had only by referring to other comprehensive works.

In the chapters dealing with amoebae and amoebiasis which are in the main condensations of one of Dobell's former papers (*Amoebae living in Man*, 1919; reviewed in THE JOURNAL, 6:202), Dobell seems to be positive about the nature of the so-called "iodine cysts." The views expressed by Kofoid and his colleagues (1919), Brug (1921) and Nöller (1921), however, seem to demand further careful investigation of this feature.

Although Dobell concluded his manuscript in April, 1921 (p. ix) and has quoted three of his own papers in that year, he failed to mention or discuss two species of parasitic amoeba recorded in 1920: *Entamoeba paradysenteriae* Chatterjee 1920, reviewed in THE JOURNAL, 8:48) and *E. macrohyalina* Tobaldi 1920 (reviewed in THE JOURNAL, 7:102). It is further regretful that the study by Kofoid and Swezy on an amoeba of a new genus: *Councilmania lafleuri* 1921 (reviewed in THE JOURNAL, 8:48) from North America was published a few months after this date and hence could not be included in the present work.

Of the flagellates Dobell considers that the cysts of *Trichomonas hominis* have not yet been found by anyone. One must agree with him in maintaining that the cysts observed by Lynch (THE JOURNAL, 3:28-33) were really those of *Chilomastix mesnili*, but can hardly find adequate reason to join him in interpreting the cysts described by Boyd (THE JOURNAL, 5:132-136) as "merely rounded and degenerating individuals." As to the cultivation of this flagellate *in vitro*, Dobell concludes that "at present, however, it is not possible to cultivate this organism with certainty in any medium," since "all the attempts which we ourselves have made have been failures." American students of Protozoology are nevertheless well acquainted with the positive results obtained by several authors in artificial cultivation of these flagellates. Most recently Hogue (1921) has succeeded in cultivating this organism in a new medium. The statement just quoted takes the form of an unjust criticism of the studies by Kofoid and Swezy on *Chilomastix mesnili*. After quoting their descriptions of the structures of this flagellate, Dobell writes that "even if their account is correct—which we do not believe—it appears to be physically impossible to prove the existence of so many structures in so small a cyst (about 8μ in diameter), for they figure systems of points and lines whose actual existence could hardly be demonstrated by the finest optical apparatus." Furthermore, concerning nuclear division in the cyst of the flagellate as described by Kofoid and Swezy, Dobell states that "if nuclear division does occur within the cyst, it must be excessively rare" and that he is "completely at a loss to account even for the single nuclear division which they describe," since he never saw a single cyst containing more than one nucleus, though having examined "thousands upon thousands of cysts in human feces." In this instance Dobell seems to have overrun the limits of appropriate criticism, in view of the fact that he does not state he has ever examined the preparations of the above mentioned American investigators, and further in view of the statement to the effect that, since he has not seen a cyst with more than one nucleus, the nuclear division described by Kofoid and Swezy in the cyst of *Chilomastix mesnili* must be a false interpretation of the "optical image."

The synonym of the seventeen species of Protozoa is given thorough consideration, and their geographical distribution is generally though briefly discussed. Yet, if the names of the localities where the Protozoa had hitherto been observed were even merely listed, readers would have been greatly benefited. The treatment of intestinal protozoal infections is dealt with in desirable detail and will give readers a fairly clear view of the subject without referring to the original papers.

The last chapter contains a very helpful discussion of the coprozoic Protozoa of man, a sufficient knowledge of which is of utmost importance to those who actually examine stools for protozoan parasites; this subject has been only fragmentally treated in most books on parasitic Protozoa.

All drawings are magnified uniformly 2,000 diameters, which is enough for larger species but seems to be too small to show in detail the structures of more minute forms. The figures are very carefully and attractively done. The first plate shows five species of amoebae sketched beautifully in living and active condition and is worthy of special commendation.